



# Sun GlassFish Enterprise Server v3 Upgrade Guide



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# Preface

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This guide explains how to upgrade Java™ EE applications from Sun Java System Application Server 9.1 Update 2 (Developer Profile), Sun GlassFish™ Enterprise Server v2 Update 2 (Developer Profile), Sun GlassFish Enterprise Server v2.1 (Developer Profile), and Sun GlassFish Enterprise Server v3 Prelude to Sun GlassFish Enterprise Server v3.

This preface contains information about and conventions for the entire Sun GlassFish Enterprise Server (Enterprise Server) documentation set.

Enterprise Server v3 is developed through the GlassFish project open-source community at <https://glassfish.dev.java.net/>. The GlassFish project provides a structured process for developing the Enterprise Server platform that makes the new features of the Java EE platform available faster, while maintaining the most important feature of Java EE: compatibility. It enables Java developers to access the Enterprise Server source code and to contribute to the development of the Enterprise Server. The GlassFish project is designed to encourage communication between Sun engineers and the community.

The following topics are addressed here:

- “Enterprise Server Documentation Set” on page 5
- “Related Documentation” on page 7
- “Typographic Conventions” on page 8
- “Symbol Conventions” on page 8
- “Default Paths and File Names” on page 9
- “Documentation, Support, and Training” on page 10
- “Searching Sun Product Documentation” on page 10
- “Third-Party Web Site References” on page 10
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## Enterprise Server Documentation Set

The Enterprise Server documentation set describes deployment planning and system installation. The Uniform Resource Locator (URL) for Enterprise Server documentation is <http://docs.sun.com/coll/1343.9>. For an introduction to Enterprise Server, refer to the books in the order in which they are listed in the following table.

TABLE P-1 Books in the Enterprise Server Documentation Set

Book Title	Description
<i>Release Notes</i>	Provides late-breaking information about the software and the documentation. Includes a comprehensive, table-based summary of the supported hardware, operating system, Java Development Kit (JDK™), and database drivers.
<i>Quick Start Guide</i>	Explains how to get started with the Enterprise Server product.
<i>Installation Guide</i>	Explains how to install the software and its components.
<i>Upgrade Guide</i>	Explains how to upgrade to the latest version of Enterprise Server. This guide also describes differences between adjacent product releases and configuration options that can result in incompatibility with the product specifications.
<i>Administration Guide</i>	Explains how to configure, monitor, and manage Enterprise Server subsystems and components from the command line by using the <code>asadmin(1M)</code> utility. Instructions for performing these tasks from the Administration Console are provided in the Administration Console online help.
<i>Application Deployment Guide</i>	Explains how to assemble and deploy applications to the Enterprise Server and provides information about deployment descriptors.
<i>Your First Cup: An Introduction to the Java EE Platform</i>	Provides a short tutorial for beginning Java EE programmers that explains the entire process for developing a simple enterprise application. The sample application is a web application that consists of a component that is based on the Enterprise JavaBeans™ specification, a JAX-RS web service, and a JavaServer™ Faces component for the web front end.
<i>Application Development Guide</i>	Explains how to create and implement Java Platform, Enterprise Edition (Java EE platform) applications that are intended to run on the Enterprise Server. These applications follow the open Java standards model for Java EE components and APIs. This guide provides information about developer tools, security, and debugging.
<i>Add-On Component Development Guide</i>	Explains how to use published interfaces of Enterprise Server to develop add-on components for Enterprise Server. This document explains how to perform <i>only</i> those tasks that ensure that the add-on component is suitable for Enterprise Server.
<i>Embedded Server Guide</i>	Explains how to run applications in embedded Enterprise Server and to develop applications in which Enterprise Server is embedded.
<i>Scripting Framework Guide</i>	Explains how to develop scripting applications in languages such as Ruby on Rails and Groovy on Grails for deployment to Enterprise Server.
<i>Troubleshooting Guide</i>	Describes common problems that you might encounter when using Enterprise Server and how to solve them.

TABLE P-1 Books in the Enterprise Server Documentation Set (Continued)

Book Title	Description
<i>Error Message Reference</i>	Describes error messages that you might encounter when using Enterprise Server.
<i>Reference Manual</i>	Provides reference information in man page format for Enterprise Server administration commands, utility commands, and related concepts.
<i>Domain File Format Reference</i>	Describes the format of the Enterprise Server configuration file, <code>domain.xml</code> .
<i>Java EE 6 Tutorial, Volume I</i>	Explains how to use Java EE 6 platform technologies and APIs to develop Java EE applications.
<i>Message Queue Release Notes</i>	Describes new features, compatibility issues, and existing bugs for Sun GlassFish Message Queue.
<i>Message Queue Administration Guide</i>	Explains how to set up and manage a Sun GlassFish Message Queue messaging system.
<i>Message Queue Developer's Guide for JMX Clients</i>	Describes the application programming interface in Sun GlassFish Message Queue for programmatically configuring and monitoring Message Queue resources in conformance with the Java Management Extensions (JMX).
<i>System Virtualization Support in Sun Java System Products</i>	Summarizes Sun support for Sun Java System products when used in conjunction with system virtualization products and features.

## Related Documentation

*The Java EE 6 Tutorial, Volume II* ([https://www.sun.com/offers/details/java\\_ee6\\_tutorial.xml](https://www.sun.com/offers/details/java_ee6_tutorial.xml)) contains all the topics in *Java EE 6 Tutorial, Volume I* and adds advanced topics, additional technologies, and case studies. The document is available to registered users of Enterprise Server.

Javadoc™ tool reference documentation for packages that are provided with Enterprise Server is available as follows:

- The API specification for version 6 of Java EE is located at <http://java.sun.com/javase/6/docs/api/>.
- API documentation for packages that are specific to the Enterprise Server product is located at: <http://javadoc.glassfish.org/v3/apidoc/>.

Additionally, the following resources might be useful:

- The Java EE Specifications (<http://java.sun.com/javase/technologies/index.jsp>)
- The Java EE Blueprints (<http://java.sun.com/reference/blueprints/index.html>)

For information about creating enterprise applications in the NetBeans™ Integrated Development Environment (IDE), see <http://www.netbeans.org/kb/60/index.html>.

For information about the Java DB for use with the Enterprise Server, see <http://developers.sun.com/javadb/>.

The sample applications demonstrate a broad range of Java EE technologies. The samples are bundled with the Java EE Software Development Kit (SDK).

## Typographic Conventions

The following table describes the typographic changes that are used in this book.

TABLE P-2 Typographic Conventions

Typeface	Meaning	Example
AaBbCc123	The names of commands, files, and directories, and onscreen computer output	Edit your <code>.login</code> file. Use <code>ls -a</code> to list all files. <code>machine_name%</code> you have mail.
<b>AaBbCc123</b>	What you type, contrasted with onscreen computer output	<code>machine_name%</code> <b>su</b> Password:
<i>AaBbCc123</i>	A placeholder to be replaced with a real name or value	The command to remove a file is <i>rm filename</i> .
<i>AaBbCc123</i>	Book titles, new terms, and terms to be emphasized (note that some emphasized items appear bold online)	Read Chapter 6 in the <i>User's Guide</i> . A <i>cache</i> is a copy that is stored locally. Do <i>not</i> save the file.

## Symbol Conventions

The following table explains symbols that might be used in this book.

TABLE P-3 Symbol Conventions

Symbol	Description	Example	Meaning
[ ]	Contains optional arguments and command options.	<code>ls [-l]</code>	The <code>-l</code> option is not required.
{   }	Contains a set of choices for a required command option.	<code>-d {y n}</code>	The <code>-d</code> option requires that you use either the <code>y</code> argument or the <code>n</code> argument.

TABLE P-3 Symbol Conventions (Continued)

Symbol	Description	Example	Meaning
<code>{ }</code>	Indicates a variable reference.	<code>{com.sun.javaRoot}</code>	References the value of the <code>com.sun.javaRoot</code> variable.
-	Joins simultaneous multiple keystrokes.	Control-A	Press the Control key while you press the A key.
+	Joins consecutive multiple keystrokes.	Ctrl+A+N	Press the Control key, release it, and then press the subsequent keys.
→	Indicates menu item selection in a graphical user interface.	File → New → Templates	From the File menu, choose New. From the New submenu, choose Templates.

## Default Paths and File Names

The following table describes the default paths and file names that are used in this book.

TABLE P-4 Default Paths and File Names

Placeholder	Description	Default Value
<i>as-install</i>	Represents the base installation directory for Enterprise Server.  In configuration files, <i>as-install</i> is represented as follows: <code>{com.sun.aas.installRoot}</code>	Installations on the Solaris™ operating system, Linux operating system, and Mac operating system: <i>user's-home-directory/glassfishv3/glassfish</i>  Windows, all installations: <i>SystemDrive:\glassfishv3\glassfish</i>
<i>as-install-parent</i>	Represents the parent of the base installation directory for Enterprise Server.	Installations on the Solaris operating system, Linux operating system, and Mac operating system: <i>user's-home-directory/glassfishv3</i>  Windows, all installations: <i>SystemDrive:\glassfishv3</i>
<i>domain-root-dir</i>	Represents the directory in which a domain is created by default.	<i>as-install/domains/</i>
<i>domain-dir</i>	Represents the directory in which a domain's configuration is stored.  In configuration files, <i>domain-dir</i> is represented as follows: <code>{com.sun.aas.instanceRoot}</code>	<i>domain-root-dir/domain-name</i>

## Documentation, Support, and Training

The Sun web site provides information about the following additional resources:

- [Documentation](http://www.sun.com/documentation/) (<http://www.sun.com/documentation/>)
- [Support](http://www.sun.com/support/) (<http://www.sun.com/support/>)
- [Training](http://www.sun.com/training/) (<http://www.sun.com/training/>)

## Searching Sun Product Documentation

Besides searching Sun product documentation from the docs.sun.com<sup>SM</sup> web site, you can use a search engine by typing the following syntax in the search field:

```
search-term site:docs.sun.com
```

For example, to search for “broker,” type the following:

```
broker site:docs.sun.com
```

To include other Sun web sites in your search (for example, [java.sun.com](http://java.sun.com), [www.sun.com](http://www.sun.com), and [developers.sun.com](http://developers.sun.com)), use `sun.com` in place of `docs.sun.com` in the search field.

## Third-Party Web Site References

Third-party URLs are referenced in this document and provide additional, related information.

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# Application Server Compatibility Issues

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Sun GlassFish™ Enterprise Server v3 (Enterprise Server v3) is binary compatible with Sun Java™ System Application Server 9.1 Update 2 (Developer Profile) and with Sun GlassFish Enterprise Server v2 Update 2 (Developer Profile), v2.1 (Developer Profile), and v3 Prelude. Java applications that run on Sun Java System Application Server 9.1 Update 2 (Developer Profile) or on Sun GlassFish Enterprise Server v2 Update 2 (Developer Profile), v2.1 (Developer Profile), or v3 Prelude, also work on Sun GlassFish Enterprise Server v3 except for the compatibility issues listed in this chapter.

The following topics are addressed here:

- “Application Client Interoperability” on page 11
- “Command Line Interface: The `asadmin` Command” on page 12
- “Applications That Use Java DB” on page 14
- “Applications That Use Persistence” on page 14
- “Signed Applications” on page 15
- “HTTP Service to Network Service Changes” on page 15

## Application Client Interoperability

The Java EE 6 platform specification imposes stricter requirements than Java EE 5 did on which JAR files can be visible to various modules within an EAR file. In particular, application clients must not have access to EJB JAR files or other JAR files in the EAR file unless they use a `Class-Path` header in the manifest file, or unless references use the standard Java SE mechanisms (extensions, for example), or use the Java EE `library-directory` mechanism. Deployed Java EE 5 applications that are upgraded to Enterprise Server v3 will have the `compatibility` property set to v2 and will run without change on Enterprise Server v3. You may, however, want to consider modifying the applications to conform to Java EE 6 requirements.

If your upgrade includes a deployed application with an application client, you will need to retrieve the client stubs using Enterprise Server v3 in order to run the client. Use the `asadmin get-client-stubs` command.

If you try to run the application client before retrieving the client stubs, you will see the following error message:

```
Invalid or corrupt jarfile jar-file-name
```

If you commonly distribute application clients to remote systems from which users will run them, you must not only retrieve the client stubs, but you must also run the `package-appclient` utility for Enterprise Server v3 to upgrade the Enterprise Server system files. This utility creates a JAR file, which you can then expand on the remote systems.

Application clients use EJBs, web services, or other enterprise components that are in the application server (on the server side). The application client and the application server must use the same version and implementation of the RMI-IIOP protocol. Enterprise Server v3 does not support communication between different versions of the protocol implementation. You cannot run application clients with one version of the application server runtime with a server that has a different version. Most often, this would happen if you upgraded the server but had not upgraded all the application client installations. If you run the `package-appclient` utility, this issue will not arise.

You can use the Java Web Start support to distribute and launch the application client. If the runtime on the server has changed since the end-user last used the application client, Java Web Start automatically retrieves the updated runtime. Java Web Start enables you to keep the clients and servers synchronized and using the same runtime.

## Command Line Interface: The `asadmin` Command

The following sections describe changes to the command line utility `asadmin`:

- “`asadmin` Subcommands” on page 12
- “Deprecated and Unsupported Options” on page 13

For more information about `asadmin` and its subcommands, see the [Sun GlassFish Enterprise Server v3 Reference Manual](#).

### `asadmin` Subcommands

Subcommands are backward compatible except as noted below.

The following subcommand is deprecated.

- `deploydir` (use `deploy` instead)

In Enterprise Server v3, it is recommended that utility options of the `asadmin` command precede the subcommand. Utility options are options that control the behavior of the `asadmin` utility, as distinguished from subcommand options. Use of the following options after the subcommand is deprecated.

- `--host`
- `--port`
- `--user`
- `--passwordfile`
- `--terse`
- `--secure`
- `--echo`
- `--interactive`

## Deprecated and Unsupported Options

Options in [Table 1-1](#) are deprecated or no longer supported.

TABLE 1-1 Deprecated and Unsupported `asadmin` Options

Option	Deprecated or Unsupported in Subcommands
<code>--defaultvs</code>	Deprecated for the <code>create-http-listener</code> subcommand.
<code>--httplisteners</code>	Deprecated for the <code>create-virtual-server</code> subcommand. Use <code>--networklisteners</code> instead.
<code>--acceptlang</code>	Unsupported for the <code>create-virtual-server</code> subcommand.
<code>--acls</code>	Unsupported for the <code>create-virtual-server</code> subcommand.
<code>--adminpassword</code>	Unsupported for all relevant subcommands. Use <code>--passwordfile</code> instead.
<code>--blockingenabled</code>	Unsupported for the <code>create-http-listener</code> subcommand.
<code>--configfile</code>	Unsupported for the <code>create-virtual-server</code> subcommand.
<code>--defaultobj</code>	Unsupported for the <code>create-virtual-server</code> subcommand.
<code>--domain</code>	Unsupported for the <code>stop-domain</code> subcommand.
<code>--instance</code>	Unsupported for all remote subcommands.
<code>--mime</code>	Unsupported for the <code>create-virtual-server</code> subcommand.
<code>--password</code>	Unsupported for all remote subcommands. Use <code>--passwordfile</code> instead.
<code>--path</code>	Unsupported for the <code>create-domain</code> subcommand. Use <code>--domaindir</code> instead.
<code>--resourcectype</code>	Unsupported for all relevant subcommands. Use <code>--restype</code> instead.

TABLE 1-1 Deprecated and Unsupported `asadmin` Options (Continued)

Option	Deprecated or Unsupported in Subcommands
<code>--target</code>	Unsupported at this release for all subcommands.

## Applications That Use Java DB

The directory location of Java DB in Enterprise Server v3 has changed from its location in previous installations. Suppose that you have deployed applications that use Java DB databases in your previous server installation, and you upgrade your existing installation to Enterprise Server v3. If you run the `asadmin start-database` command and successfully start Java DB, you could run into problems while trying to run applications that were deployed on your previous server installation.

To solve this problem, you can copy the `databases` directory from your previous installation to `as-install/databases`. Make sure the database is not running when you do this.

Alternatively, you can perform these steps:

1. After upgrade, start Enterprise Server v3.
2. Use the `asadmin start-database` command with the `--dbhome` option pointing to the `databases` directory in the older version of Java DB. For example:

```
asadmin start-database --dbhome c:\glassfish\databases
```

3. Deploy the migrated applications.

## Applications That Use Persistence

Enterprise Server v3 uses the persistence provider `EclipseLink`, while earlier versions used `TopLink`. If your application uses persistence, you may have to modify the `persistence.xml` file or your code as follows:

- The upgrade process modifies the `ddl-generation` property of the `persistence.xml` file to specify the new provider. However, it does not modify the `provider` element. If your application's `persistence.xml` file contains this element, change it to specify the following:

```
<provider>org.eclipse.persistence.jpa.PersistenceProvider</provider>
```

The `provider` element is required if the application creates an `EntityManagerFactory` by calling the method `Persistence.createEntityManagerFactory`.

- If the application contains any `TopLink`-specific code and therefore contains casts to `oracle.toplink.*`, you must change the code to cast to `org.eclipse.persistence.*`. You can use the package renamer tool described on the [Eclipse wiki](#) to do this. This tool is not provided with Enterprise Server v3, however, so you must obtain it from the `EclipseLink` project download site.

## Signed Applications

During the upgrade process, archives for previously deployed applications are recreated from the application repository bits and then redeployed. This approach does not work for signed applications. After archive recreation, the signature becomes invalid. Therefore, you must redeploy the signed applications manually after upgrade.

## HTTP Service to Network Service Changes

In Enterprise Server v3, most HTTP Service settings have been moved into the new Network Service configuration.

The changes are described in the following sections.

- [“Changes to Dotted Names” on page 15](#)
- [“Changes to `asadmin` Commands” on page 16](#)
- [“Remapping of HTTP Service Attributes and Properties” on page 17](#)
- [“New Network Service Elements and Attributes” on page 22](#)

### Changes to Dotted Names

The dotted name hierarchy for the HTTP Service configuration in the v3 Prelude release is shown below. Elements that are no longer supported are `request-processing`, `keep-alive`, `connection-pool`, `http-protocol`, `http-file-cache`, and `http-listener`. During the upgrade process, these discontinued elements are remapped to the new configuration automatically and then deleted.

```
config
  http-service
    access-log
    request-processing
    keep-alive
    connection-pool
    http-protocol
    http-file-cache
    http-listener
    ssl
    property
  virtual-server
    http-access-log
    property
  property
  thread-pools
  thread-pool
```

The dotted name hierarchy for the new Network Service and HTTP Service configurations is shown below. The `network-config` element and all its children are new except for `ssl`.

```
config
  network-config
    transports
      selection-key-handler
      transport
    protocols
      protocol
        http
          file-cache
          port-unification
          protocol-finder
          protocol-chain-instance-handler
          protocol-chain
          protocol-filter
        ssl
      network-listeners
        network-listener
    http-service
      access-log
      virtual-server
        http-access-log
        property
      property
      thread-pools
      thread-pool
```

The following examples compare the commands for setting a listener port for Enterprise Server v3 Prelude and Enterprise Server v3.

- Command for Enterprise Server v3 Prelude:

```
asadmin set server-config.http-service.http-listener.http-1.listenerport=4321
```

- Command for Enterprise Server v3:

```
asadmin set server-config.network-config.network-listeners.network-listener.http-1.listenerport=4321
```

## Changes to `asadmin` Commands

To accommodate the move of HTTP Service into the new Network Service configuration, `asadmin(1M)` commands are changed as follows:

- The `create-ssl(1)` command has a new `--type` parameter value, `network-listener`.
- The `create-virtual-server(1)` command has a new parameter, `--networklisteners`.

- The `create-http-listener(1)` command adds a `network-listener` element to the domain configuration. The syntax and options of this commands are unchanged.

## Remapping of HTTP Service Attributes and Properties

The following tables describe how attributes and properties in the HTTP Service configuration for v3 Prelude are remapped to attributes in the Network Service configuration for Enterprise Server v3. If you use a configuration from an Enterprise Server v2 or v3 release, this remapping happens automatically and then discontinued elements are deleted.

TABLE 1-2 `com.sun.grizzly` Property Remapping

<code>com.sun.grizzly</code> Property	New Owning Element	New Attribute Name
<code>selector.timeout</code>	<code>transport</code>	<code>selector-poll-timeout-millis</code>
<code>displayConfiguration</code>	<code>transport</code>	<code>display-configuration</code>
<code>enableSnoop</code>	<code>transport</code>	<code>snoop-enabled</code>
<code>readTimeout</code>	<code>transport</code>	<code>read-timeout-millis</code>
<code>writeTimeout</code>	<code>transport</code>	<code>write-timeout-millis</code>

TABLE 1-3 `connection-pool` Attribute Remapping

<code>connection-pool</code> Attribute	New Owning Element	New Attribute Name
<code>queue-size-in-bytes</code>	<code>thread-pool</code>	<code>max-queue-size</code>
<code>max-pending-count</code>	<code>transport</code>	<code>max-connections-count</code>
<code>receive-buffer-size-in-bytes</code>	<code>http</code>	<code>request-body-buffer-size-bytes</code>
<code>send-buffer-size-in-bytes</code>	<code>http</code>	<code>send-buffer-size-bytes</code>

TABLE 1-4 `http-file-cache` Attribute Remapping

<code>http-file-cache</code> Attribute	New Owning Element	New Attribute Name
<code>file-caching-enabled</code>	<code>file-cache</code>	<code>enabled</code>
<code>max-age-in-seconds</code>	<code>file-cache</code>	<code>max-age-seconds</code>
<code>medium-file-space-in-bytes</code>	<code>file-cache</code>	<code>max-cache-size-bytes</code>
<code>max-files-count</code>	<code>file-cache</code>	<code>max-files-count</code>
<code>globally-enabled</code>	<code>none</code>	<code>not supported</code>
<code>medium-file-size-limit-in-bytes</code>	<code>none</code>	<code>not supported</code>

**TABLE 1-4** http-file-cache Attribute Remapping *(Continued)*

http-file-cache Attribute	New Owning Element	New Attribute Name
small-file-size-limit-in-bytes	none	not supported
small-file-space-in-bytes	none	not supported
file-transmission-enabled	none	not supported
hash-init-size	none	not supported

**TABLE 1-5** http-listener Attribute Remapping

http-listener Attribute	New Owning Element	New Attribute Name
id	network-listener	name
address	network-listener	address
port	network-listener	port
enabled	network-listener	enabled
acceptor-threads	transport	acceptor-threads
security-enabled	protocol	security-enabled
default-virtual-server	http	default-virtual-server
server-name	http	server-name
redirect-port	http	redirect-port
xpowered-by	http	xpowered-by
external-port	none	not supported
family	none	not supported
blocking-enabled	none	not supported

**TABLE 1-6** http-listener Property Remapping

http-listener Property	New Owning Element	New Attribute Name
maxKeepAliveRequests	http	max-connections
authPassthroughEnabled	http	auth-pass-through-enabled
compression	http	compression
compressableMimeType	http	compressable-mime-type
noCompressionUserAgents	http	no-compression-user-agents
compressionMinSize	http	compression-min-size-bytes

TABLE 1-6 http-listener Property Remapping (Continued)

http-listener Property	New Owning Element	New Attribute Name
restrictedUserAgents	http	restricted-user-agents
cometSupport	http	comet-support-enabled
connectionUploadTimeout	http	connection-upload-timeout-millis
disableUploadTimeout	http	upload-timeout-enabled
chunkingDisabled	http	chunking-enabled
uriEncoding	http	uri-encoding
traceEnabled	http	trace-enabled
rcmSupport	http	rcm-support-enabled
jkEnabled	network-listener	jk-enabled
crlFile	ssl	crl-file
trustAlgorithm	ssl	trust-algorithm
trustMaxCertLength	ssl	trust-max-cert-length-bytes
tcpNoDelay	transport	tcp-no-delay
bufferSize	transport	buffer-size-bytes
use-nio-direct-bytebuffer	transport	byte-buffer-type
proxyHandler	none	not supported
proxiedProtocols	none	not supported
recycle-objects	none	not supported
reader-threads	none	not supported
acceptor-queue-length	none	not supported
reader-queue-length	none	not supported
connectionTimeout	none	not supported
monitoring-cache-enabled	none	not supported
monitoring-cache-refresh-in-millis	none	not supported
ssl-cache-entries	none	not supported
ssl3-session-timeout	none	not supported
ssl-session-timeout	none	not supported

**TABLE 1-7** http-protocol Attribute Remapping

http-protocol <b>Attribute</b>	<b>New Owning Element</b>	<b>New Attribute Name</b>
version	http	version
forced-response-type	http	forced-response-type
default-response-type	http	default-response-type
dns-lookup-enabled	none	not supported
ssl-enabled	none	not supported

**TABLE 1-8** http-service Property Remapping

http-service <b>Property</b>	<b>New Owning Element</b>	<b>New Attribute or Property Name</b>
accessLoggingEnabled	http-service, virtual-server	access-logging-enabled attribute
ssl-cache-entries	http-service	unchanged property
ssl3-session-timeout	http-service	unchanged property
ssl-session-timeout	http-service	unchanged property
proxyHandler	http-service	unchanged property
connectionTimeout	http-service	unchanged property
all other properties	none	not supported

**TABLE 1-9** keep-alive Attribute Remapping

keep-alive <b>Attribute</b>	<b>New Owning Element</b>	<b>New Attribute Name</b>
max-connections	http	max-connections
timeout-in-seconds	http	timeout-seconds
thread-count	none	not supported

**TABLE 1-10** request-processing Attribute Remapping

request-processing <b>Attribute</b>	<b>New Owning Element</b>	<b>New Attribute Name</b>
thread-count	thread-pool	max-thread-pool-size
initial-thread-count	thread-pool	min-thread-pool-size
header-buffer-length-in-bytes	http	header-buffer-length-bytes
request-timeout-in-seconds	http	request-timeout-seconds

**TABLE 1-10** request-processing Attribute Remapping *(Continued)*

request-processing Attribute	New Owning Element	New Attribute Name
thread-increment	none	not supported

**TABLE 1-11** ssl Attribute Changes

Previous Attribute or Property	Previous Owning Element	New ssl Attribute
none	none	key-store
none	none	trust-store
crlFile property	http-listener	crl-file
trustAlgorithm property	http-listener	trust-algorithm
trustMaxCertLength property	http-listener	trust-max-cert-length-bytes
all other ssl attributes	ssl	unchanged

**TABLE 1-12** thread-pool Attribute Changes

Previous Attribute	Previous Owning Element	New thread-pool Attribute
none	none	classname
none	none	max-queue-size
thread-pool-id	thread-pool	name
idle-thread-timeout-in-seconds	thread-pool	idle-thread-timeout-seconds
num-work-queues	thread-pool	not supported
all other thread-pool attributes	thread-pool	unchanged

**TABLE 1-13** virtual-server Attribute Changes

Previous Attribute or Property	Previous Owning Element	New virtual-server Attribute
http-listeners attribute	virtual-server	network-listeners
accessLoggingEnabled property	http-service	access-logging-enabled
sso-enabled property	virtual-server	sso-enabled
ssoCookieSecure property	virtual-server	sso-cookie-secure
all other virtual-server attributes	virtual-server	unchanged
all other virtual-server properties	virtual-server	unchanged, still properties

## New Network Service Elements and Attributes

The following tables describe new Network Service elements and attributes. For attributes and properties remapped from discontinued elements to new elements, see [“Remapping of HTTP Service Attributes and Properties” on page 17](#).

The new `file-cache` element has no new attributes. All of its attributes are remapped from the `http-file-cache` element. For details, see [Table 1-4](#).

TABLE 1-14 New `http` Attributes

Attribute	Default	Description
<code>adapter</code>	<code>com.sun.grizzly.tcp.StaticResourcesAdapter</code>	(Optional) Specifies the class name of the static resources adapter.
<code>max-post-size-bytes</code>	2097152	(Optional) Specifies the maximum size of POST actions.

For remapped `http` attributes, see [Table 1-3](#), [Table 1-5](#), [Table 1-6](#), [Table 1-7](#), [Table 1-9](#), and [Table 1-10](#).

TABLE 1-15 New `network-listener` Attributes

Attribute	Default	Description
<code>protocol</code>	<code>none</code>	Specifies the name of the protocol associated with this <code>network-listener</code> . Although this attribute is required, a protocol is automatically created with the same name as the <code>network-listener</code> when you use <code>asadmin create-http-listener</code> to create a <code>network-listener</code> .
<code>thread-pool</code>	<code>none</code>	(Optional) Specifies the name of the thread-pool associated with this <code>network-listener</code> .
<code>transport</code>	<code>none</code>	Specifies the name of the transport associated with this <code>network-listener</code> . Although this attribute is required, the default transport is used when you use <code>asadmin create-http-listener</code> to create a <code>network-listener</code> .

For remapped `network-listener` attributes, see [Table 1-5](#).

TABLE 1-16 New `port-unification` Attributes

Attribute	Default	Description
<code>name</code>	<code>none</code>	Specifies a unique name for the port-unification.
<code>classname</code>	<code>none</code>	Specifies the class name of the port-unification implementation.

TABLE 1-17 New protocol Attributes

Attribute	Default	Description
name	none	Specifies a unique name for the protocol.

For remapped protocol attributes, see [Table 1-5](#).

TABLE 1-18 New protocol-chain Attributes

Attribute	Default	Description
name	none	Specifies a unique name for the protocol-chain.
classname	none	Specifies the class name of the protocol-chain implementation.
type	STATELESS	Specifies the type of protocol chain.

TABLE 1-19 New protocol-chain-instance-handler Attributes

Attribute	Default	Description
name	none	Specifies a unique name for the protocol-chain-instance-handler.
classname	none	Specifies the class name of the protocol-chain-instance-handler implementation.

TABLE 1-20 New protocol-filter Attributes

Attribute	Default	Description
name	none	Specifies a unique name for the protocol-filter.
classname	none	Specifies the class name of the protocol-filter implementation.

TABLE 1-21 New protocol-finder Attributes

Attribute	Default	Description
name	none	Specifies a unique name for the protocol-finder.
classname	none	Specifies the class name of the protocol-finder implementation.
protocol	none	Specifies the name of the protocol associated with this protocol-finder.

TABLE 1-22 New selection-key-handler Attributes

Attribute	Default	Description
name	none	Specifies a unique name for the selection-key-handler.

TABLE 1-22 New selection-key-handler Attributes (Continued)

Attribute	Default	Description
classname	none	Specifies the class name of the selection-key-handler implementation.

TABLE 1-23 New ssl Attributes

Attribute	Default	Description
key-store	none	(Optional) Specifies a key store.
trust-store	none	(Optional) Specifies a trust store.

For remapped ssl attributes, see [Table 1-11](#).

TABLE 1-24 New thread-pool Attributes

Attribute	Default	Description
classname	com.sun.grizzly.http. StatsThreadPool	(Optional) Specifies the class name of the thread-pool implementation.
max-queue-size	-1	(optional) Specifies the maximum number of messages that can be queued until threads are available to process them. A value of -1 specifies no limit.

For remapped thread-pool attributes, see [Table 1-3](#), [Table 1-10](#), and [Table 1-12](#).

TABLE 1-25 New transport Attributes

Attribute	Default	Description
name	none	Specifies a unique name for the transport.
classname	com.sun.grizzly. TCPSelectorHandler	(Optional) Specifies the class name of the transport implementation.
selection-key-handler	none	(Optional) Specifies the name of the selection-key-handler associated with this transport.
idle-key-timeout-seconds	30	(Optional) Specifies the idle key timeout.

For remapped transport attributes, see [Table 1-2](#), [Table 1-3](#), [Table 1-5](#), and [Table 1-6](#).

# Upgrading an Application Server Installation

---

The Upgrade Tool, which is bundled with Sun GlassFish™ Enterprise Server v3 (Enterprise Server v3), replicates the configuration of a previously installed server in the target installation. The Upgrade Tool assists in upgrading the configuration and applications from an earlier version of the Application Server or Enterprise Server to Enterprise Server v3. To view a list of the older versions from which you can upgrade, see [Table 2-1](#).

The following topics are addressed here:

- “Upgrade Overview” on page 25
- “Performing an Upgrade” on page 28

---

**Note** – The Upgrade Tool is different from the Update Tool, which allows you to add or update components of Enterprise Server v3. For more information about the Update Tool, see “Update Tool” in *Sun GlassFish Enterprise Server v3 Administration Guide*.

---

## Upgrade Overview

[Table 2-1](#) shows supported upgrade paths.

TABLE 2-1 Supported Upgrade Paths

Source Installation	Enterprise Server v3
Sun Java™ System Application Server 9.1 Update 2 (Developer Profile)	Supported.
Sun GlassFish Enterprise Server v2 Update 2 (Developer Profile)	Supported.

TABLE 2-1 Supported Upgrade Paths (Continued)

Source Installation	Enterprise Server v3
Sun GlassFish Enterprise Server v2.1 (Developer Profile)	Supported.
Sun GlassFish Enterprise Server v3 Prelude	Supported.

---

**Note** – Enterprise Server v3 does not support clustering. Therefore, upgrading from the Enterprise Profile is not supported.

---

## Upgrade Tool Interfaces

You can use the tool through the command-line interface (CLI) or the GUI.

- To use the Upgrade Tool in GUI mode, issue the `asupgrade` command with no options. See [“To Upgrade by Using the Upgrade Tool Wizard” on page 29](#) for details.
- To run the Upgrade Tool in CLI mode, invoke the `asupgrade` command with the `-c/--console` option. See [“To Upgrade From the Command Line” on page 28](#) for more details.

## Upgrade Terminology

The following are important terms related to the upgrade process.

### Source Domain Directory

The directory of the server domain from which you are upgrading to the new version (for example, `c:\glassfish\domains\domain1`).

### Target Domains Root Directory

The directory where domains are created on the server to which you are upgrading (for example, `c:\glassfishv3\glassfish\domains`).

### Master Password

The SSL certificate database password used in operations such as Enterprise Server startup. This term refers to the master password of the installation from which you want to upgrade. You need to specify this password if you have changed it from the default value of `changeit`.

## Upgrade Tool Functionality

The Upgrade Tool migrates the configuration and deployed applications from an earlier version of the Application Server or Enterprise Server to the current version. The Upgrade Tool

does not upgrade the binaries of the server. The installer is responsible for upgrading the binaries. Database migrations or conversions are also beyond the scope of this upgrade process.

---

**Note** – Before starting the upgrade process, make sure that you stop all domains in the source server (the server from which you are upgrading) and the target server (the server to which you are upgrading).

---

## Migration of Deployed Applications

Application archives (EAR files) and component archives (JAR, WAR, and RAR files) that are deployed in the source server do not require any modification to run on Sun GlassFish Enterprise Server v3. Components that may have incompatibilities are deployed on Enterprise Server v3 with the `compatibility` property set to v2 and will run without change on Enterprise Server v3. You may, however, want to consider modifying the applications to conform to Java EE 6 requirements..

The Java EE 6 platform specification imposes stricter requirements than Java EE 5 did on which JAR files can be visible to various modules within an EAR file. In particular, application clients must not have access to EJB JAR files or other JAR files in the EAR file unless they use a `Class-Path` header in the manifest file, or unless references use the standard Java SE mechanisms (extensions, for example), or use the Java EE `library-directory` mechanism. Setting this property to v2 removes these Java EE 6 restrictions.

Applications and components that are deployed in the source server are deployed on the target server during the upgrade. Applications that do not deploy successfully on the target server must be deployed manually on the target server by the user.

If a domain contains information about a deployed application and the installed application components do not agree with the configuration information, the configuration is migrated as is without any attempt to reconfigure the incorrect configurations.

## Upgrade Verification

An upgrade log records the upgrade activity. The upgrade log file is named `upgrade.log` and is created in the working directory from which the Upgrade Tool is run. Additional information is recorded in the server log of the upgraded domain.

## Performing an Upgrade

When you use the Upgrade Tool, the source server and the target server are normally installed on the same machine, but under different install locations. Both server file systems must be accessible from the system on which you perform the upgrade.

The Upgrade Tool upgrades your server configuration and deployed applications.

To perform the upgrade, the user who runs the upgrade needs to have Read permissions for the source and target directories and Write permission for the target directory.

---

**Note** – Ensure that you have stopped all domains in the source server before you start the upgrade process.

---

There are two ways to upgrade your server installation:

- [“To Upgrade From the Command Line” on page 28](#)
- [“To Upgrade by Using the Upgrade Tool Wizard” on page 29](#)

## To Upgrade From the Command Line

To run Upgrade Tool in command-line mode, use the `-c` option. You can run the upgrade tool in command-line mode using the following syntax:

```
asupgrade
[--console]
[--version]
[--help]
[--source previous-server-installation-domaindirectory]
[--target enterprise-server-v3-installation]
[--masterpassword mpassword]
[--passwordfile password-file]
```

[Table 2–2](#) describes the command options in greater detail, including the short form, the long form, and a description.

**TABLE 2–2** asupgrade Utility Command Options

Short Form	Long Form	Description
-c	--console	Launches the upgrade command line utility.
-V	--version	The version of the Enterprise Server.

TABLE 2-2 asupgrade Utility Command Options (Continued)

Short Form	Long Form	Description
-h	--help	Displays the arguments for launching the upgrade utility.
-s <i>source-path</i>	--source <i>source-path</i>	The installation directory of the older server installation.
-t <i>target-path</i>	--target <i>target-path</i>	The domains directory of the Enterprise Server v3 installation.
-m <i>mpassword</i>	--masterpassword <i>mpassword</i>	The master password for the source server.
-f <i>file-name</i>	--passwordfile <i>file-name</i>	The file containing the admin password and the master password.

The following example shows how to use the asupgrade command-line utility to upgrade an existing Sun GlassFish Enterprise Server v2.1 installation to Enterprise Server v3.

```
asupgrade -c --source /home/glassfish/domains/domain1 --target /home/glassfishv3/glassfish/domains
```

If you invoke the tool only with the -c/--console option, the tool enters the interactive CLI mode, where you are asked to supply the needed options.

After you issue the asupgrade command, the tool informs you that domain1 already exists in the target directory and asks if you would like to rename it. If you type y, the directory is renamed domain1.original. If domain1.original already exists, the directory is named domain1.original.0.

## ▼ To Upgrade by Using the Upgrade Tool Wizard

- 1 Start the wizard as follows.
  - On a UNIX system, change to the *as-install/bin* directory and type asupgrade.
  - On a Windows system, double-click the asupgrade.bat icon in the *as-install/bin* directory.
- 2 In the Source Domain Directory field, type the domain directory of the existing installation from which to import the configuration, or click Browse.

For example, you might type c:\glassfish\domains\domain1.

- 3 In the Target Domains Root Directory field, type the location of the Enterprise Server v3 installation to which to transfer the configuration, or click Browse.**

The default is the full path name of the domains directory of your Enterprise Server v3 installation (for example, `c:\glassfishv3\glassfish\domains`).

- 4 (Optional) Provide the master password of the source application server.**

The domain will be upgraded using these credentials.

- 5 Click Next.**

A dialog box informs you that `domain1` already exists in the target directory and asks if you would like to rename it. If you click OK, the directory is renamed `domain1.original`. If `domain1.original` already exists, the directory is named `domain1.original.0`.

- 6 The Upgrade Results page displays the status of the upgrade operation.**

- 7 Click Finish to exit the Upgrade Tool when the upgrade process is complete.**

**Next Steps** After you complete the upgrade, start the Enterprise Server using the `asadmin start-domain` command. Log in to the Administration Console with the user name and password you used in the older server.

To register your installation of Enterprise Server from the Administration Console, select the Registration node. For step-by-step instructions on the registration process, click the Help button on the Administration Console.

Visit the URL `http://localhost:8080` to view the `domain-dir/docroot/index.html` file. This file is brought over during the upgrade. You may want to copy the default Enterprise Server v3 file from the `domain1.original/docroot` directory and customize it for your Enterprise Server v3 installation.

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